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Before the
Federal Communications Commission
Washington, D.C. 20554

ORIGINAL

In the Matter of	)	
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Progeny LMS, LLC	)	
	)	File No. _____
Amendment of Part 90 of the Commission's Rules Governing the Location and Monitoring Service to Provide Greater Flexibility	)	

PETITION FOR RULEMAKING

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Summary

Progeny LMS, LLC, pursuant to Section 1.401 of the Commission's rules, hereby petitions the Commission to initiate expeditiously a rulemaking to grant additional flexibility to Location and Monitoring Service ("LMS") licensees and to eliminate or modify certain restrictions currently included in Sections 90.351 to 90.365 of the Commission's rules. Progeny is licensed to provide LMS in the 902-928 megahertz band. **As** Progeny demonstrates in its petition, however, the LMS licensees' ability to develop and roll out effective LMS networks and services has been constrained by operational, content and aggregation restrictions that threaten the viability of the service. Because of these restrictions, Progeny and other licensees have been unable to secure sufficient capital or to engage manufacturers to develop equipment for LMS networks. **As** a result, consumers and businesses are now denied the substantial benefits that otherwise would flow from deployment of robust LMS services in this valuable block of spectrum.

Progeny asks the Commission to apply to the LMS band its market-oriented policy of allowing licensees flexibility to offer whatever services the market can support and demand, so long as those operations do not hinder or interfere with the operations of primary **users** in the band. Progeny believes the current restrictions on type and content of messages, as well as on spectrum aggregation, by LMS providers are unnecessary and represent an outmoded approach to spectrum management. More specifically, Progeny is requesting that the Commission consider eliminating, or at least modifying (1) the LMS "spectrum cap," in order to allow a single licensee to hold all of the LMS licenses in an

EA; (2) the restriction on real-time interconnection with the public switched telephone network (PSTN); **(3)** the restriction on types of communications or services that LMS operators may provide; and (4) the "safe harbor" provision that creates a presumption of non-interference for secondary users of the band.

Eliminating these restrictions will serve the public interest by allowing licensees to move forward with plans to develop and deploy effective networks. Action by the Commission would maximize the shared usage of the 902-928 MHz band, as originally envisioned by the Commission. It also would allow LMS licensees to offer an array of voice and data messaging services, coupled with advanced location technologies, in packages that would provide not only economic benefits to businesses but also key public safety capabilities to consumers, potentially saving countless lives. Moreover, Progeny asks the Commission to proceed rapidly to initiate a rulemaking. While the market for location-based wireless services is now in its infancy, it holds the potential for vibrant growth. Granting LMS operators additional flexibility will allow them to compete with CMRS providers, which are rolling out enhanced 911 location technologies that will provide similar economic and public safety benefits. Increased competition in the overall market for location-based wireless services can only benefit the public by providing incentives for rapid network buildouts, high quality services, and low prices for businesses and consumers.

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PETITION FOR RULEMAKING

Progeny LMS, LLC ("Progeny"), pursuant to Section 1.401 of the Commission's Rules, hereby requests that the Commission initiate and expeditiously conduct a rulemaking proceeding to grant additional flexibility to 900 MHz Location and Monitoring Service ("LMS") licensees and to modify certain restrictions currently included in Sections 90.351 to 90.365 of the Commission's Rules. As Progeny demonstrates herein, the current restrictions have prevented the licensees and manufacturers from developing services, and equipment required for such services, that could be offered in this spectrum. Progeny believes such services would produce substantial benefits to the public. The modifications suggested below would allow the deployment of new and innovative services, without increasing the risk of harmful interference to the other primary users of the 902-928 MHz band, and without impairing the secondary users of this band. Thus, the public interest would be well served by initiation of a rulemaking proceeding to modify the LMS rules as proposed in this petition

I. Background

The Location and Monitoring Service in the 902-928 MHz band has a long history at the Commission dating back to the early 1970s, when the Commission adopted an order permitting the introduction of the Automatic Vehicle Monitoring ("AVM") service. AVM was later renamed LMS when the Commission allocated spectrum and adopted permanent service rules for a location service using the 902-928 MHz band.

The FCC found that LMS systems had the potential to provide a number of important functions, such as tracking and monitoring large fleets of vehicles and providing information to allow more efficient use of vehicles through better dispatch and routing information. The FCC's initial policies for AVM/LMS systems were issued on an interim basis but remained in effect for many years.

The history of Progeny and its predecessor companies with AVM service is almost as long. From the early 1980s to the present, investors in Progeny and its predecessor organizations have made numerous capital contributions and have invested much time and effort in building a successful network. They have attempted to restmcture the business plan to remain abreast of the market and have worked with leading service providers and equipment suppliers to create a viable service.'

' In the early 1980s, Mr. Nick Frenzel invested a combination of equity and loan capital into a predecessor company known as **METS,** Inc., the general partner in a venture known as Mobile Vision L.P., whose mission was to provide vehicle location service. Encouraged by the promise of this service, Indiana Bell, a subsidiary of Ameritech, also contributed at least $25 million in cash to the Mobile Vision venture. In addition, Ameritech contributed technology to create a viable consumer location service. Technology and service trials were conducted, with the most significant being in Boca Raton, Florida.

In 1995, the Commission adopted a series of decisions updating and refining its "interim" regulations. The Commission allocated the 902-928 MHz band for LMS and adopted permanent LMS service rules,' which it later reconsidered with respect to certain technical issues and grandfathered LMS users.[3] In addition, the Commission resolved issues relating to interconnection and possible operations,[4] and adopted competitive bidding rules for the 900 MHz LMS auction.[5] The Commission's scheme for LMS generally resulted in the creation of a "niche" radio service, intended to serve a narrow

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In 1988, Mr. Frenzel again provided capital to METS and Mobile Vision in an attempt to support their value creation in IVDS; meanwhile, the location service continued not to generate substantial revenue. Mr. Frenzel assumed a senior secured creditor position in the companies as a result of these loans and obtained a secured lien on METS's assets, including equipment, intellectual property, and certain frequencies licensed by the FCC to the IVDS start-up. Upon the insolvency of METS and Mobile Vision in late 1996, Mr. Frenzel and his family acquired all assets of the companies as senior secured creditors.

Subsequently, Mr. Frenzel brought in new management, again in an attempt to build a viable IVDS service—this time under the Progeny name. That management persuaded Mr. Frenzel and other investors of the importance of a nationwide spectrum footprint to the launch of IVDS service. Therefore, Progeny bid for and obtained LMS licenses at auction. Throughout the period of the late 1990s to the present, Progeny has worked with its employees, and several consultants and agents, as well as its investor group, to build a viable service. In fact, none of the many service providers and equipment suppliers approached by Progeny have followed through; their decisions not to support the LMS service have been based on the absence of any real equipment and on the built-in limitations on viable service provision imposed by licensing constraints.

[2] ***Report and Order***, 10 FCC Rcd 4695 (1995) ("LMS Order")

[3] ***Order on Reconsideration,*** 11 FCC Rcd 16905 (1996) ("LMS Reconsideration Order").

[4] ***Memorandum Opinion and Order and Further Notice of Proposed Rule Making,*** 12 FCC Rcd 13492 (1997) ("LMS Further Notice").

[5] ***Second Report and Order,*** 13 FCC Rcd 15182 (1998) ("LMS Second Order"). The Commission determined to auction licenses for 176 total Economic Areas ("EAs") covering the United States.

portion of the public – those persons or entities desiring only location and monitoring services.

In early 1999, the Commission auctioned 528 LMS licenses for 176 EAs ("Auction 21"), producing winning bids from four companies: Progeny, Warren C Havens, Metro-Trak, LCC, and FCR, Inc. Not all of the available EA-based LMS licenses were sold in Auction 21; there remained nearly 250 EA-based LMS licenses left to be sold. The Commission has tried twice during the past year to auction the remaining licenses. An auction held in June 2001 (Auction 39) left some 42 LMS licenses unsold.[6] The Commission again scheduled an auction of the remaining LMS licenses for January 10, 2002, to be sold along with 800 MHz specialized mobile radio service and 220 MHz service licenses (Auction 43). On November 30, 2001, however, the Commission released a public notice indicating the postponement of the LMS portion of the auction until an unspecified later date. The Commission said that it had received no application from any potential participant in the auction that "reflected an intent to bid exclusively on LMS licenses."[7]

Progeny believes that experiences and events that have occurred in the years since the Commission adopted rules for LMS necessitate a review and modification of the regulations applicable to this service. The Commission has not undertaken a review of the rules and policies for the 900 MHz LMS since its initial formative rulemaking orders. Changes in the Commission's wireless policies and changes in the wireless industry since

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[6] See "VHF Auction Nets $1.1 Million," *TelecommunicationsReports,* June 18, 2001; see also, "News in Brief," *TRDaily,* September 7, 2001

[7] See *Auction of Licenses for Multi-Radio Service Spectrum, Status of FCC Form 175 Applications to Participate in the Auction,* Public Notice, DA 01-2762, rel. Nov. 30, 2001.

that time, however, have been dramatic and far-reaching. In addition, attempts at implementing this service demonstrate that some modifications are necessary in order for LMS to succeed.

In contrast to LMS, the Commission's pro-competitive and deregulatory approach to its administrative oversight has fueled much of the success of the CMRS marketplace. The Commission has loosened technology and ownership restrictions, permitted foreign market entry, ensured that licenses are distributed to a wide variety of entities, and permitted CMRS providers to offer a flexible range of services, with minimal rate or consumer protection regulation. These actions, in turn, have dramatically altered the wireless industry. For example, in 1993, the CMRS industry in any particular geographic market consisted basically of a cellular duopoly, a handful of radio common carriers and paging providers, and private two-way radio systems – each with a particular customer base, and each limited to a unique service. Today, by contrast, the **CMRS** industry is robust, with over 120 million subscribers, multiple personal wireless and business wireless choices, and multiple service offerings – often from the same carrier.

During this extraordinary burst of marketplace activity, the 902-928 MHz LMS industry, unfortunately, languished. Because the first auctioned licenses in this service were only awarded in 1999, the **LMS** companies were without a regulatory "voice" during much of the 1990s, when these regulatory changes were made. **As** a result, LMS remains subject to a regulatory scheme born out of political compromises that more appropriately characterize the stratified wireless industry of 1993 than today's competitively robust wireless industry, Moreover, the technological context of LMS has

evolved since 1993, warranting a new look at the technical, operational and content restrictions embedded in the LMS rules.'

Notwithstanding the significant changes that have occurred, the 900 MHz LMS industry is saddled with service and technical limitations that have blocked the licensees' ability to provide service successfully, and which, unless removed, may doom the service. It is critical to modify several of the rule limitations described herein so that a truly nationwide LMS system can develop, which in turn will allow LMS to become an effective competitor to other CMRS systems that also provide location and monitoring services.

II. The Commission Should Reexamine its 900 MHz LMS Rules in Light of the Significant Changes that have Occurred

The LMS service rules adopted in 1995 were a unique compromise reflecting the diverse incumbent uses of the hand and the varying degrees of political influence wielded by those user groups. The 902-928 MHz band was occupied by two groups of users that were "primary" to LMS -- Federal Government Radiolocation, Fixed and Mobile services and users of Industrial, Scientific, and Medical (ISM) devices. In addition, the band was occupied by two groups of users that were "secondary" to LMS -- licensed amateur radio

[8] The Commission is obligated to periodically review its policies to determine whether its predictive judgments have borne fruit. ***See*** *Bechtel v. FCC*, 957 F.2d 873, 881 (D.C. Cir. 1992) (subsequent procedural history omitted) (The FCC's "wide latitude to make policy . . . implies a correlative duty to evaluate its policies over time to ascertain whether they work – that is, whether they actually produce the benefits the Commission originally predicted they would.").

operators and unlicensed users of Part 15 equipment.' The resulting service rules reflect this pedigree. LMS must share the band with "secondary" users that are afforded a substantial degree of protection from interference from the nominally "primary" LMS service. Equally important, these "secondary" users are also allowed to cause a not insignificant amount of interference to the LMS providers under an unprecedented "safe harbor" definition of non-interference. In addition, LMS providers are subject to very specific service limitations, including restrictions on the content of messages." In sum, the LMS rules are a regulatory anachronism, particularly when contrasted with the Commission's policies and actions affecting other radio services.

A. Spectrum Flexibility Is An Established Commission Policy

The Commission's spectrum policies have evolved significantly since the LMS rules were adopted. The Commission now recognizes that spectrum will generally be put to its highest and best use when licensees are provided maximum flexibility. Thus, the Commission has largely abandoned its old practices of narrowly prescribing the services a licensee can offer and narrowly detailing the licensee's technical operations. Indeed, in

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[9] Progeny observes that one of the proponents of protections for the Part 15 users – Metricom – subsequently sought protection under the bankruptcy laws, calling into question the viability of such use of unlicensed spectrum to provide mass-market commercial services. Technology Briefing, ***New York Times,*** "Metricom Files For Bankruptcy Protection", July **3,** 2001

[10] For example, under 47 C.F.R.§ 90.353(b), LMS systems are allowed to transmit status and instructional messages "so long as they are related to the location or monitoring functions of the system." *Also,* Section **90.351** specifies that "LMS systems utilize non-voice radio techniques to determine the location and status of mobile radio units."

adopting its Policy Statement outlining guiding principles for spectrum management activities, the Commission made clear the need for, and benefits of, spectrum flexibility:

> Spectrum is a valuable and finite public resource that must be allocated and assigned in a manner that will provide the greatest possible benefit to the American public. At the same time, it is important to encourage the development and deployment of new, more efficient technologies that will increase the amount of information that can be transmitted in a given amount of bandwidth. .... In the majority of cases, efficient spectrum markets will lead to use of spectrum for the highest value end use. Flexible allocations may result in more efficient spectrum markets. Flexibility can be permitted through the use of relaxed service rules, which would allow licensees greater freedom in determining the specific services to be offered. Another way to allow flexibility in use of the spectrum is to allow licensees to negotiate among themselves arrangements for avoiding interference rather than apply mandatory technical rules to control interference. A third possibility is to harmonize the rules for like services. Harmonization provides regulatory neutrality to help establish a level playing field across technologies and thereby foster more effective competition. Such a structure would permit reliance on the marketplace to achieve the highest-valued use of the spectrum. It would also ensure that the Commission and its processes do not become a bottleneck in bringing new radio communications services and technologies to the public.''

The Commission's Policy Statement articulated a few narrow exceptions to this policy of spectrum flexibility – public safety services and mass media services – where the "marketplace" alone would not be likely to meet important public interest goals." Those exceptions are not applicable here.

More recently, Commission Chairman Michael Powell reiterated the necessity of flexible allocations. In his speech on "Digital Broadband Migration Part II," the

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[11] See *Principles for the Reallocation of Spectrum to Encourage the Development of Telecommunications Technologies for the New Millenium*, Policy Statement, 14 FCC Rcd 19868 (1999) at ¶¶ 7-9.

[12] Id. at ¶ 11.

Chairman addressed his philosophy regarding five areas, including spectrum allocation policy.[13] In discussing the principal objectives for spectrum policy, he stated:

> It is important that the Commission move from its traditional spectrum management paradigm of "command and control" to a paradigm of market-oriented allocation policy to provide more flexible allocations that allow multiple uses so that spectrum can be put to its highest and best use. ... In moving toward a market-oriented allocation policy, it is vital that we carefully consider technological boundaries and that we clearly define spectrum interference limits and usage rights.

The LMS service rules in effect today are inconsistent with these flexible spectrum allocation policies

1. The Commission Provides Flexibility for New Services and New Allocations

Moreover, the evolution of the Commission's approach to spectrum is not just a matter of policy statements or speeches – the Commission's actions have matched its words. In its decisions allocating spectrum for new services over the last few years, the Commission has provided substantial flexibility to the licensees. For example, with regard to the Personal Communications Service (PCS), the licensees "may provide any mobile communications service on their assigned spectrum. Fixed services may be provided on a co-primary basis with mobile operations."[14] Likewise, for the General Wireless Communications Service (GWCS), the licensees are permitted to "provide any fixed or mobile communications service on their assigned spectrum."[15] Similarly, the

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[13] FCC Chairman Michael Powell, "Digital Broadband Migration Part II," opening remarks at press conference, October 23, 2001. See http://www.fcc.gov/Speeches/Powell/2OOl/spmkp109.html.

[14] 47 C.F.R.§ 24.3. The only limitation on permissible offerings is that PCS licensees may not provide broadcasting service.

[15] 47 C.F.R.§ 26.3. There are some limitations. GWCS licensees may not provide broadcasting services, radiolocation services or satellite services in these bands.

Commission has provided substantial flexibility for the Miscellaneous Wireless Communications Services (WCS) licensees.[16] In its recent allocation of frequencies transferred from the government, the Commission also provided significant flexibility for much of that spectrum.[17] As the Commission observed in its decision with regard to one of the bands:

> We believe that a number of technologies, including the three described above, are well suited to this band. Therefore, in keeping with our policy of providing flexibility where possible and appropriate so that potential licensees can determine and offer the services that are valued most highly, we are adopting our proposal to provide a flexible allocation in this band for fixed and mobile (except aeronautical mobile) services.[18]

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16 Section 27.2 of the Commission's Rules (Permissible Communications) provides:

> (a) Miscellaneous wireless communications services. Except as provided in paragraph (b) of this section and subject to technical and other rules contained in this part, a licensee in the frequency bands specified in Sec. 27.5 may provide any services for which its frequency bands are allocated, as set forth in the non-Federal Government column of the Table of Allocations in Sec. 2.106 of this chapter (column 5).
>
> (b) 746-747 MHz, 776-777 MHz, 762-764 MHz and 792-794 MHz bands. Operators in the 746-747 MHz, 776-777 MHz, 762-764 MHz and 792-794 MHz bands may not employ a cellular system architecture. A cellular system architecture is defined, for purposes of this part, as one that consists of many small areas or cells (segmented from a larger geographic service area), each of which uses its own base station, to enable frequencies to be reused at relatively short distances.
>
> (c) Satellite DARS. Satellite digital audio radio service (DARS) may be provided using the 2310-2320 and 2345-2360 MHz bands. Satellite DARS service shall be provided in a manner consistent with part 25 of this chapter.

17 *Reallocation of the 216-220 MHz, 1390-1395 MHz, 1427-1429 MHz, 1429-1432 MHz, 1432-1435 MHz, 1670-1675 MHz and 2385-2390 MHz Government Transfer Bands,* FCC 01-382, released January 2, 2002.

18 *Id.* at ¶ 64

In sum, the Commission has successfully applied this philosophy of spectrum flexibility to new allocations.

2. The Commission has Also Amended its Rules to Grant Flexibility to Licensees in Established Services

The Commission's application of its policy favoring flexibility is not limited to new services and new allocations. With regard to several established services, the Commission has also amended its rules to add significant flexibility. For example, the Commission expanded the permissible services of cellular licensees to include fixed as well as all mobile services." The Commission similarly expanded the flexibility of 39 GHz licensees, allowing them to provide mobile and point-to-multipoint fixed services in addition to the traditional point-to-point fixed services offered in that band.[20]

In another situation somewhat analogous to the circumstances surrounding LMS, the Commission revised the rules for the Interactive Video and Data Service (IVDS) to provide substantially more flexibility. The original service envisioned for IVDS – interactive television applications – proved to be commercially unsuccessful, and

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[19] 47 C.F.R.§ 22.901(d), in describing the expanded authority of cellular licensees, provides the following:

> Alternative technologies and co-primary services. Licensees of cellular systems may use alternative cellular technologies and/or provide fixed services on a co-primary basis with their mobile offerings, including personal communications services (as defined in part **24** of this chapter) on the spectrum within their assigned channel block. Cellular carriers that provide mobile services must make such service available to subscribers whose mobile equipment conforms to the cellular system compatibility specification (see Sec. 22.933).

[20] ***Amendment of the Commission's Rules** Regarding the 37.0-38.6 GHz and 38.6-40.0 GHz **Bunds,*** FCC 97-391, released November 3, 1997.

licensees found that they were hampered by service rules narrowly tailored to such a service (a circumstance which has recurred with respect to LMS). Through a series of actions, the Commission waived or suspended certain buildout, auction payment, and technical rules. In 1999, the Commission re-named the service the 218-219 MHz service and substantially revised the service rules in order to allow licensees flexibility to provide a variety of fixed and mobile services in response to market demand.[21] As the Commission observed in that decision:

> In this *[Reportand Order]*, we modify our regulations governing the licensing of the 218-219 MHz Service to maximize the efficient and effective use of the 218-219 MHz frequency band. We believe that these rule changes create a regulatory structure that will enable licensees to meet the public's current and future needs through the most technically and economically efficient use of this spectrum practicable."

In yet another, very similar situation, the Commission has substantially expanded the flexibility afforded to licensees for the Multipoint Distribution Service **(MDS)** Traditionally, **MDS** spectrum had been used to deliver multichannel video programming services similar to cable television. In March 1996, the Commission completed its auction of the remaining unlicensed **MDS** spectrum with the expectation that such spectrum would be used for the provision of "wireless cable" services. Since the 1996 auction, the **MDS** industry has been rapidly evolving. In July 1996, the Commission's *Digital Declaratory Ruling* permitted licensees to utilize digital modulation techniques on

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[21] *Amendment of Part 95 of the Commission'sRules to Provide Regulatory Flexibility in the 218-219 MHz Service,* FCC 99-239, released September 10, 1999

[22] *Id.* at ¶ 2

their **MDS** spectrum.[23] In October 1996, the Commission allowed **MDS** operators to use their spectrum for high-speed digital data applications, including Internet access.[24] Subsequently, in March 1997 the Commission received petitions from individual licensees and an MDS trade association seeking a change in the rules to allow licensees to provide two-way services over their **MDS** spectrum. Two-way authorization enables licensees to provide high-speed, ultra-high-capacity broadband service, including two-way Internet service *via* cellularized communication systems. In 1998, the Commission approved the use of two-way transmissions on **MDS** and ITFS frequencies.[25] More recently, the Commission took action to grant MDS and ITFS licensees an even more "flexible allocation" by adding a mobile allocation to the 2500-2690 MHz band. In this action, the Commission stated that it hoped to pave the way for eventual use of that band for *3G* advanced wireless services.[26] This action represents the Commission's willingness to continue granting additional flexibility so that existing licensees may maximize the use of their spectrum in a rapidly evolving wireless service marketplace. **A** similar approach should be taken in connection with LMS spectrum.

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[23] *See In the Matter of Request for Declaratory Ruling on the Use of Digital Modulation by Multipoint Distribution Service and Instructional Television Fixed Service Stations,* 11 FCC Rcd 18839 (1996).

[24] *See Public Notice, The Mass Media Bureau Implements Policy for Provision of Internet Service on MDS and Leased ITFS Frequencies,* 11 FCC Rcd 22419 (1996).

[25] *See In the Matter of Amendment of Parts 21 and 74 to Enable Multipoint Distribution Service and Instructional Television Fixed Service Licensees to Engage in Fixed Two-way Transmissions ("Two-way Order"),* 13 FCC Rcd 19112 (1998), *recon.,* 14 FCC Rcd 12764 (1999), *further recon.,* 15 FCC Rcd 14566 (2000).

[26] See *Amendment of Part 2 of the Commission's Rules to Allocate Spectrum Below 3 GHz for Mobile and Fixed Services to Support the Introduction of New Advanced Wireless Services, Including Third Generation Wireless Systems,* First Report and Order and Memorandum Opinion and Order, 16 FCC Rcd 17222 (2001) at ¶2.

3. Additional Flexibility is also Consistent with Congressional Intent

As noted above, over the last few years the Commission has not only provided flexibility to licensees of newly-created services, but it has also changed the rules applicable to older services so as to provide greater flexibility in light of changes in technology and market conditions. Progeny seeks similar relief for LMS. Progeny also observes that such additional flexibility is consistent with both precedent (as noted above) and Congressional intent. In 1997, Congress amended the Communications Act and explicitly granted the Commission authority to provide flexibility to licensees if certain conditions are met. Section 303 (y) of the Communications Act now provides:

> [The Commission shall have] authority to allocate electromagnetic spectrum so as to provide flexibility of use, if -
>
> (1) such use is consistent with international agreements to which the United States is a party; and
>
> (2) the Commission finds, after notice and an opportunity for public comment, that -
>
> (A) such an allocation would be in the public interest;
>
> (B) such use would not deter investment in communications services and systems, or technology development; and
>
> (C) such use would not result in harmful interference among users.[27]

Progeny believes these conditions are applicable to the LMS spectrum. The proposed changes are not inconsistent with international allocations for these bands. In addition, as described in greater detail herein, providing additional flexibility would

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[21] 47 U.S.C. § 303 (y). [Pub. L. 105-33, title 111, Sec. 3005, Aug. 5, 1997, 111 Stat. 268]

enhance the public interest by allowing productive use to be made of the LMS bands. Moreover, such flexibility will encourage investment in communications services and technology development. Indeed, the current service limits have stifled investment in LMS technologies and services. Finally, substitution of Progeny's proposals for technical limits, where needed, will provide equally effective protection against the risk of harmful interference to the primary services and secondary services sharing this band with LMS.

B. Equipment is Not Available for Deployment of LMS under the Current Constraints and Is Very Unlikely to Become Available

Progeny has diligently been seeking to implement service, but it has been unable to do so because of, ***inter alia***, the absence of suitable equipment. As a result of the various limitations which currently apply to LMS licensees, manufacturers apparently have been unwilling to commit the resources necessary to design and develop equipment that will support the narrow offerings LMS licensees can provide under the current rules. Manufacturers do not perceive that there is a market, given current regulatory restraints, to justify such significant investments.

In an effort to move forward to provide service using its LMS licenses, Progeny has held discussions with a virtual "Who's Who" of American manufacturers of telecommunications equipment. The response from several of the largest equipment suppliers, as well as from more entrepreneurial providers, has been consistent: the narrow "market" for a stand-alone location and monitoring service (particularly with the constraints imposed by the Commission) will not be sufficient to justify the time and expenses necessary to develop equipment for that market The feedback has been

uniform. For example, one equipment supplier said that both its regulatory team and its engineers had examined the possibility of manufacturing equipment and investing capital to develop the LMS spectrum. They concluded that, given the regulatory restrictions that govern the spectrum, the company could not justify any investment in LMS. Another service provider opined that, given the onerous regulations that apply, Progeny would not find any company that would take the risk of developing LMS equipment. Other prospects concluded that the band would not be viable without "real time interconnectivity" to the public switched network. Further opinion was offered that GPS had "rendered the LMS band antiquated."

Moreover, this problem of equipment unavailability is exacerbated by the current status of the telecommunications equipment manufacturing sector. Equipment manufacturers in general have seen their stock prices plummet and their sources of capital dry up, thus making it even more unlikely that any manufacturer will risk investing its limited research and development resources in equipment for LMS.[28] The market is unproven at best, and as discussed herein, the severe service restrictions and emergence of deep-pocketed competitors (CMRS carriers who are now required to incorporate location capabilities in their systems) make it unlikely that LMS will develop under the current limitations. Thus, Progeny does not anticipate any solution to the current dilemma caused by the absence of equipment for LMS, absent changes to the Commission's Rules.

[28] By way of example, industry leaders Lucent and Nortel Networks shares have both traded above **$80** per share (in mid-1999 and early-2000, respectively), but both companies' shares were priced as low as less than $6 per share in trading during mid-February 2002.

C. There Have Been Dramatic Changes in the Location Marketplace

LMS developed as a niche offering – the successor to the Automatic Vehicle Monitoring service. **LMS** thus had its genesis as a narrow application – tracking stolen automobiles. Although LMS was intended to be somewhat broader than this particular purpose, the service rules were developed with the assumption that a specific capability (and only that capability) would be provided – the ability to track and monitor goods and/or people. **As** a result, the LMS rules narrowly circumscribe the types of services that can be offered by LMS licensees.

Separate and apart from the development of the LMS service rules, the Commission subsequently adopted requirements for **CMRS** providers governing the ability of emergency call centers to obtain information automatically on the location of a mobile caller. This mandated location capability is similar to the location information provided on wireline calls to 911 (so-called enhanced 911 or E-911). The Commission adopted a two-phased approach that obligates all CMRS carriers to provide location information (as well as a call-back number) to Public Service Answering Points on every call to 911. The first phase only required that the cell site of the caller be identified, but the second phase requires that **CMRS** carriers provide a more precise location of an emergency caller.[29]

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[29] The location accuracy requirements vary, depending on whether a system-based or hand-set based solution is utilized. For handset-based solutions, the requirement is 50 meters for 67 percent of calls and 150 meters for 95 percent of calls. For network-based solutions, the requirement is 100 meters for 67 percent of calls and 300 meters for 95 percent of calls.

The Commission adopted the service rules for LMS, including the service restrictions, in February 1995, following its Notice of Proposed Rulemaking, which was adopted in 1993. The Commission's initial decision establishing the E-911 location requirements for CMRS carriers was adopted in mid-1996. Thus, in creating the LMS service rules the Commission did not take into consideration the impact that requiring CMRS providers to include location capabilities would have on the niche market to which LMS licensees were limited. That effect is significant.

CMRS providers have, and will certainly retain, many distinct advantages over LMS providers. Because location requirements are mandated for CMRS providers, all of the systems will be deploying location capabilities. In light of this obligation and the large base of CMRS customers, equipment manufacturers have been assured of a significant market, thus justifying research and development expenditures. As a result, equipment has been developed for location capabilities (both system-based and handset-based) for CMRS bands. In contrast, as noted above, Progeny has been unable to locate any manufacturer willing to develop equipment for LMS. Moreover, in light of the "embedded base" of more than 100 million CMRS customers, equipment manufacturers developing equipment for those carriers will enjoy significant scale economies, which presumably will be passed along to the CMRS carriers.

Thus, in the marketplace for location capabilities, CMRS providers will enjoy a "head start" over LMS providers (because of the availability of equipment) as well as cost advantages. Moreover, CMRS providers are not encumbered by service restrictions that severely limit the types of offerings LMS providers can market. LMS providers are

at a significant disadvantage in competing for customers because of the service limitations.

For example, a CMRS provider can offer the full panoply of automobile telematics, including unlimited two-way communications capabilities for voice and data. By contrast, an **LMS** licensee can only provide a limited set of telematics functions – location services and certain communications services. Even those communications services are severely limited, since they can only offer "status" and "instructional" messages related to the location or monitoring functions of the system (47 C.F.R.§ 90.353(b)), and only on a store-and-forward basis (except for emergency communications)(47 C.F.R.§ 90.435(c)). Thus, "real-time" communications currently are proscribed.

LMS licensees are further disadvantaged in competing against CMRS providers with regard to the specialized location services LMS licensees may provide, because the CMRS operators do not have the same spectrum aggregation limits. LMS licensees are precluded from holding more than 8 MHz of spectrum in the 902-928 MHz band.[30] By contrast, broadband cellular, PCS and SMR CMRS operators may currently hold up to 55 MHz of spectrum, and even that spectrum cap will sunset on January 1, 2003.[31]

Indeed, the disadvantage in the amount of spectrum available to an **LMS** licensee is even greater, in practical terms, because the **LMS** spectrum is constrained by the need to preclude interference to primary services and to accommodate the ''secondary" users of

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[30] See **LMS** Order at ¶48

[31] See 2000 ***Biennial Regulatory Review, Spectrum Aggregation Limits for Commercial Mobile Radio Services,*** WT Docket No 01-14, Report and Order, rel December 18,2001 (Spectrum Cap Order)

this band. In sum, LMS licensees are severely handicapped in their ability to compete in the narrow market in which the LMS service rules allow them to operate, even without the Commission's subsequent requirement that all CMRS licensees provide that "niche" location capability in conjunction with their E-911 obligations While the LMS spectrum cap may have been initially justified as necessary to ensure development of a competitive vehicle location market, it is clear that this justification has been totally negated by the market and regulatory developments discussed herein.

In short, the LMS licensees are confronted with a very difficult task in attempting to implement a niche service, induce manufacturers to make equipment for LMS, and then compete against established CMRS operators that do not face the same technical and operational constraints Moreover, the must do this as they face capital markets that for the present are nearly non-existent, particularly for start-up services such as LMS. Since the "dot-com" implosion, capital sources have dried up for entrepreneurial firms, such as Progeny, that are seeking to develop new services. Investment banks and venture funds have significantly reduced their investments in new telecommunications technology companies. In the second quarter of 2001, funding for venture-backed communications companies declined by $1 3 billion from the previous quarter.[32]

Nor is there any short-term likelihood of a successful Initial Public Offering ("IPO") for a start-up such as Progeny. Indeed, successful and established firms such as Verizon Wireless and Inmarsat have postponed their IPOs because of the inhospitable

[32] Ames, Sam, CNET News.com, "Some telecom start-ups back in money", August 13, 2001.

market.[33] Thus, the public markets are not a likely source of capital for LMS licensees at present.

Moreover, this problem pervades the telecommunications sector, meaning that potential equipment manufacturers are also faced with a non-existent capital market. **As** mentioned above, equipment is not yet available for LMS deployment, and the lack of funding makes it even more unlikely that manufacturers will expend significant research and development resources at this time on LMS products that can serve only a narrow market. Thus, the current state of the capital markets affects Progeny indirectly as well as directly, making it nearly impossible to deploy LMS as currently structured. These developments – the change in spectrum allocation policy, the unavailability of equipment, the requirement that CMRS carriers incorporate location capabilities in their systems and the inhospitable capital markets – have radically altered the landscape envisioned when the Commission established the LMS service rules in 1995.

III. The Current LMS Rules Have Not Served the Public Interest

The Commission envisioned LMS as fulfilling an important need for location and monitoring services that would aid the transportation industry and the economy in general. Progeny (and presumably the other licensees) shared this goal, and it has tried to implement a system that would deliver the promise of LMS. **As** discussed above, however, Progeny's efforts have been frustrated by the absence of equipment and capital, which in turn can be ascribed, at least in part, to the restrictive service rules for LMS. **As**

[33] See "Verizon Wireless's IPO Delay Prompts Renegotiation of Price Acquisition," *TRDaily*, July 31, 2001, and "Doubts about Next Wave Deal Might Delay Verizon Wireless

a result, potentially valuable spectrum has lain fallow, and there is little likelihood that it will be put to productive use for these services (or others) **unless** there is a change in those rules.

Both the Commission's flexible spectrum policy and the use of auctions are premised on the notion that spectrum will be used most efficiently when the marketplace, not the regulator, determines the highest and best use for that bandwidth. In the case of LMS, however, it is not the marketplace that is determining how the 902-928 MHz LMS frequencies may be used. Instead, the Commission's Rules narrowly dictate the types of communications that may be carried and the types of services that can be provided.

These service rules reflect political compromises and a now anachronistic notion that the Commission should determine precisely how spectrum must be used. **As** a result, the LMS spectrum is not being used at all. The public interest suffers when valuable spectrum such as the LMS bands lie dormant, particularly because this wasted asset cannot be recovered. In contrast to other non-renewable resources that may be recovered later (*e.g.*, minerals that are not mined now can be mined later), the time during which spectrum has been dormant has been lost forever. Thus, the public has already been deprived of the potential benefits from use of the LMS spectrum, and it will continue to suffer that loss until the spectrum is put into use. That will not occur, however, unless and until the LMS rules are changed so that the licensees, the capital markets and the equipment manufacturers have sufficient incentives to invest in the development of these bands.

IPO," ***Telecommunications Reports,*** January 14, 2002; ***see*** also ***Comsat Corp. d/b/a Comsat Mobile, et al.***, Memorandum Opinion, Order and Authorization, 16 **FCC** Rcd 21661 (2001).

IV. Suggested Changes to the Service Rules for LMS

Progeny believes that viable and valuable services can be provided in the 902-928 MHz band with straightforward changes to the LMS service rules. As described in greater detail below, Progeny urges the Commission to make the following changes to the service rules for LMS: (1) eliminate the LMS "spectrum cap" and allow a single licensee to hold all of the LMS licenses in an EA; (2) eliminate the restriction on real-time interconnection with the public switched telephone network ("PSTN"); (3) eliminate the restriction on the types of communications or services that may be provided; and (4) modify or eliminate the "safe harbor" provision that creates a presumption of non-interference for secondary users of the band.

A. Elimination of the LMS "Spectrum Cap"

Under the current rules, an LMS licensee is limited to a total of 8 MHz of spectrum in each EA, insofar as the licensee may hold only a single license, except that a licensee may hold licenses for both the 919.75-921.75 and 921.75-927.25 MHz bands in each EA territory.[34] Progeny believes that this LMS "spectrum cap" is unnecessary and counterproductive. While a justification for this limit may have existed initially, subsequent developments make clear that there is no longer any rational basis for it.

The market for location and monitoring services is much broader than merely the LMS service in the 902-928 MHz band. Location and monitoring services are presently offered by satellite systems, including Qualcomm's OmniTracs service and ORBCOMM's "Little LEO' satellite service. In addition. as a result of Commission-

[34] 47 C.F.R. § 90.353(d) and (f).

imposed requirements for E-911, nearly all CMRS carriers are required to deploy location determination capabilities in their terrestrial wireless systems. Thus, even if a single LMS entity were to acquire all three of the 902-928 MHz LMS licenses in an **EA,** there would still be numerous competitive alternatives.

On the other hand, allowing a single entity to acquire all three of the multilateration licenses could enhance the **LMS** service. **As** a result of the need for LMS licensees to avoid harmful interference to the primary services operating in this hand, as well as the unprecedented requirement that the LMS licensees tolerate interference from "secondary" services also operating in this hand, LMS licensees cannot fully utilize the bandwidth licensed to them. Providing the opportunity to aggregate the spectrum in the 902-928 MHz hand will allow LMS licensees to offer more robust and higher quality services. In addition, the greater potential capacity and quality made possible by the broader bandwidth will allow LMS licensees to compete more effectively against the other service providers offering location and monitoring services. Thus, the proposed change in the rules will redound to the benefit of consumers through enhanced quality and increased competition. It would also make the LMS industry more attractive to investors, allowing licensees to seek and obtain capital to develop and deploy the best possible networks and services.

B. Elimination of the Restriction on Real-Time Interconnection

Under the current LMS rules, a licensee can only utilize store-and-forward technology for interconnection with the PSTN, except for "emergency communications," and those can only he sent to or received from a system dispatch point or entities eligible

in the Public Safety or Special Emergency Radio Services.[35] Progeny believes this restriction disserves the public interest. To the extent that this limitation was intended to minimize the risk of interference to the primary users in this band, Progeny believes that such concerns can be fully satisfied directly, without attempting to define the services which can constitute a viable offering, and to do so in a narrow way which will almost certainly preclude the development of a workable product.

The current restriction on real-time interconnection with the PSTN limits unnecessarily the types of services that an LMS licensee can offer. **LMS** licensees cannot presently compete with services for which location and monitoring is significant, because the requirement that only store-and-forward communication services be offered prevents the LMS licensee from providing the full array of services those customers seek. In addition, the "exception" for emergency communications simply creates potential confusion, since there is no clear definition of what constitutes such emergency communications. Furthermore, in today's world, it is hard to imagine that LMS services would not be heavily dependent on Internet-based service offerings. In such an environment, an arbitrary 30-second delay in messaging, as currently mandated by the Commission's Rules, is inappropriate and serves only to make **LMS** less competitive with other potential service providers.

This limitation on real-time interconnection harms consumers by eliminating a potential competitor, without creating any offsetting benefit. To the extent there is any concern with potential interference, such concern is better addressed directly, rather than by imposing artificial limits on the services that can be offered by LMS licensees.

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[35] 47 C.F.R. § 90.353(c).

Progeny thus urges the Commission to eliminate this unnecessary and harmful restriction on real-time interconnection with the PSTN

C. Elimination of the Restriction on the Types of Services or Communications That Can Be Offered by LMS Licensees

The current LMS rules also directly limit the types of services and communications that an LMS licensee may provide. The Commission's Rules indicate that "LMS systems utilize non-voice radio techniques to determine the location and status of mobile radio units,'' and go on to state that "LMS systems are authorized to transmit status and instructional messages, either voice or non-voice, so long as they are related to the location or monitoring functions of the system."[36] Thus, the Commission's Rules narrowly circumscribe the types of services and communications that an LMS licensee may offer. As discussed above, such service limitations are a regulatory anachronism They stand in sharp contrast to the Commission's actions with regard to both new and older services where the Commission has provided licensees with the flexibility to determine which services to offer.

In adopting and applying its policy of flexible spectrum use, the Commission has recognized that the public interest is advanced when the licensees, and not the Commission, determine the highest and best use of the spectrum. Clearly that is not happening with respect to the LMS spectrum. As a result, consumers have fewer service options and enjoy less competition. Moreover, there is no offsetting benefit, particularly because any concern with regard to interference to the primary or "secondary" users in these bands can readily be addressed directly. In short, there is no longer any good

[36] 47 C.F.R. §§ 90.351 and 90.353(b)

reason (if ever there was one) to restrict the services or types of communications that an LMS licensee can offer.

D. The Commission Should Substitute Technical Limits, as Necessary, for Current Service Limitations

Progeny recognizes that LMS licensees must share the 902-928 MHz band with several other current users. LMS is secondary in the 902-928 MHz band to two groups of users that pre-dated LMS -- Federal Government Radiolocation, Fixed and Mobile services and users of Industrial, Scientific, and Medical (ISM) devices. Section 90.353(a) provides full and adequate interference protection to those users, and Progeny does not propose a modification of that rule at this time.

In addition, LMS shares the 902-928 MHz band with two groups of users that were previously operating in the band that are "secondary" to LMS -- licensed amateur radio operators and unlicensed users of Part 15 equipment. Progeny recognizes that LMS operations cannot adversely impact those users. **As** discussed above, however, sharing is best accomplished without limiting the types of services or communications that may be provided In its initial consideration of the LMS rules, the Commission tried to balance the needs of LMS operators with those of companies providing service under Part 15 rules Progeny certainly acknowledges the right of Part 15 users to operate in the 902-928 MHz bands, as they do in other bands. It is now time, however, to re-examine whether the balance sought by the Commission has been successfully achieved and maintained, given the effect of the LMS rules on Progeny and other LMS licensees.

Progeny thus urges the Commission to substitute technical constraints, as necessary, for the service limitations now incorporated in the **LMS** rules. For spread

spectrum operations, Progeny believes that a limit on the number of simultaneous users or on total power will afford sufficient protection to the primary users, while also limiting the adverse effects on the "secondary" users. For non-spread spectrum operations, Progeny believes that a duty-cycle limit, along with the current technical constraints, will provide sufficient protection for the other current users of the 902-928 MHz band. Such an approach is consistent with sharing methodologies applied by the Commission in other bands.[37]

Similarly, the "safe harbor" provisions of Section 90.361 of the Commission's rules have inappropriately shifted interference protection from more primary users in the band to secondary users. While Progeny recognizes the realities of the 902-928 MHz band, a more primary user of the band needs assurance that its operations will not be interfered with by secondary users. Such assurance is critical to attracting the investments necessary to roll out LMS services. Progeny believes that the vast majority of Part 15 devices do not represent an interference problem to LMS operations. However, Section 90.361 removes the regulatory framework that would otherwise give investors confidence in a service such as LMS. That framework should be applied to this band, as well.

Such an approach would well serve the public interest because it would allow multiple services to share this band without unnecessarily limiting the types of services

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[37] See *Amendment of Part 25 of the Commission's Rules to Establish Rules and Policies Pertaining to the Second Processing Round of the Non-Voice, Non-Geostationary Mobile Satellite Service,* Report and Order, IB Docket No. 96-220, 13 FCC Rcd 9111 (1997).

and communications that could be provided by LMS licensees. Thus, the spectrum would be put to its highest and best use.

V. The Public Interest Would Be Well Sewed by Progeny's Suggested Changes to the Rules for LMS

Instituting the proposed rule changes described in this petition would serve the public interest in multiple ways. First, adopting a new approach that focuses less on service-oriented restrictions would allow the nascent LMS industry to utilize the spectrum that has been allocated to it, thus eliminating the current wastage of spectrum, which is always a prime national resource—and is particularly so in this era when wireless services are undergoing a market-driven revolution. Altering the regulatory approach to this spectrum band in the manner described herein would allow that market for advanced wireless services, rather than regulatory fiat, to dictate the use of the frequencies. Maximizing the positive uses of spectrum is clearly in the public interest; allowing the capabilities of spectrum to lie fallow indefinitely is plainly not in the public interest.

Second, adopting the proposals in this petition would clear the path for an array of new services and technologies that are possible now, but for which the current regulatory framework in this band poses a barrier. These new services would include data and voice services, coupled with the advanced location and monitoring applications envisioned when the LMS services originally were authorized. Thus, by dismantling the regulatory barriers to innovation in this band, the FCC could make possible not only the location and monitoring services it originally intended to authorize—and which licensees cannot offer

economically in the band now—but also new, blended telematics offerings that efficiently combine location, monitoring and real-time data and voice communications. Applications for these blended telematics and communications offerings could then be successfully developed not only for commercial trucking and transport fleets, but also for mass-market, consumer consumption.

Moreover, development of these services would be very much in the public interest, because of their very nature. In allowing unlimited tracking, monitoring and communications, these services would contribute directly to the preservation of public safety. Companies could stay in constant touch with their employees and consumers could remain in contact with their families. A full range of tracking and communications services would allow customers to summon emergency personnel nearly instantaneously in case of accident or mechanical problems. The economic benefit to the country could be immense. But that pales in comparison with the personal benefit to members of the public who may be rescued from accidents or from being stranded in perilous conditions.

Another way in which targeted regulatory changes in the band will serve the public interest is through added competition in the growing market for mobile location technologies. By lifting the LMS spectrum cap, the Commission will allow a single carrier to hold all three LMS licenses in a given market. This is absolutely necessary in order for any LMS company to deploy a sufficiently robust network and service, using efficient spread-spectrum technology A robust, successful and innovative LMS provider can then compete with mobile services companies that are deploying other location technologies, such as E-911 services. The result of this competition can only be to challenge all equipment manufacturers and service providers to offer the highest-quality,

most-innovative, and least-costly equipment and services for consumers. Direct competition among different providers of mobile location technologies and services serves the public interest and directly benefits consumers, as well as corporate and industrial customers.

VI. There is a Need for Highly Expeditious Action

The Commission should act expeditiously to address the proposals in this petition by initiating a rulemaking proceeding to consider adopting them. Given the amount of resources and time that Progeny and the other LMS licensees have already invested in attempting to begin their services, further delay would be detrimental to the public interest. If LMS is to fulfill its potential as a viable service, changes are needed now to allow time for equipment development and service rollout. Further delay will only dampen incentives to invest in LMS further, eroding any likelihood that the existing LMS licenses will be put to use for the legitimate and worthwhile purpose for which they were intended.

Moreover, the Commission must act expeditiously to allow LMS to be developed and deployed, with a full range of services and applications, as CMRS providers are developing and deploying their location technologies. If LMS licensees are further delayed in rolling out their services, due to the current regulatory framework, CMRS providers are likely to gain an insurmountable advantage in the marketplace through more timely roll-outs of service, backed by the advertising and marketing prowess of these already-established mobile market players. Further delay in granting LMS licensees the flexibility they require would mean a lost opportunity to realize full

competition in the mobile location marketplace, to the detriment of consumers and businesses that might otherwise have benefited from improved services and **lower** prices

VII. Conclusion

Therefore, for the reasons stated herein, Progeny hereby asks that the Commission expeditiously initiate and conduct a rulemaking proceeding to grant additional operational and regulatory flexibility to LMS licensees in the 902-928 MHz band

Sincerely,

Alt P Halprin

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